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HICKMAN PALERMO TRUONG & BECKER, LLP
2055 GATEWAY PLACE
SUITE 550
SAN JOSE, CA 95110

EXAMINER	
BRUCKART, BENJAMIN R	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/824,725
Filing Date: April 14, 2004
Appellant(s): GOEL ET AL.

Zhichong Gu, Reg. No 56,543
For Appellant

EXAMINER'S ANSWER

This is in response to the corrected appeal brief filed 5/18/09 appealing from the Office action mailed 8/29/09.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

U.S. Patent Publication No. 2005/0086367 by Conta et al (filed 10-2003) published 4-2005.

U.S. Patent Publication No. 2005/0108315 by Singh et al. (filed 11-2003) published 5-2005.

6507874 Tuniman et al. 1-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 25-30, 34, 36-41, 45, 47-52, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conta et al. (US 2005/0086367) (hereinafter Conta) in view of Singh et al. (US 2005/0108315) (cited as pertinent prior art in previous Office Action) (hereinafter Singh).

Referring to claim 25, Conta discloses a method of selectively creating chains for a virtual interface (i.e. tunnel interface) comprising:

determining whether a new encapsulation chain (i.e. encapsulation engine) should be created, on a network element for a particular virtual interface (i.e. tunnel endpoint/interface by determining whether at least one physical port (i.e. L2 or L3 interface) on the network element is configured to send data packets of a type that would be produced by an encapsulation chain for

the particular virtual interface and can send packets toward a destination associated with the particular virtual interface and creating on the virtual interface the encapsulation chain if it is so determined (i.e. a tunnel endpoint is inherently created in order to establish communications via a tunnel, and based on the particular endpoint type will determine whether an encapsulation engine should be created, and will create one if the tunnel interface is a transmitting interface) (¶ 33, 58, 81; Figures 2-4);

determinine whether a new decapsulation chain (i.e. decapsulation engine) should be created for the particular virtual interface (i.e. tunnel endpoint/interface) by determining whether the network element is configured to receive data packets of a type that would be processed by a decapsulation chain for the particular virtual interface and will create the decapsulation chain if it is so determined (i.e. a tunnel endpoint is inherently created in order to establish communication via a tunnel, and based on the particular endpoint type, such as sending or receiving, will determine whether a decapsulation engine should be created and will create one if the tunnel interface is a receiving interface) (¶ 33, 58, 81; Figures 2-4).

Conta is silent on the architecture of the network element that it would comprise a card comprising the physical ports.

In analogous art, Singh discloses another network routing element comprising a plurality of forwarding elements 20, 22 such as line cards (which inherently include a plurality of physical ports) connected via a backplane 24 (Figure 1; ¶ 10-11).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Conta with Singh in order to utilize modular circuitry as described in Singh in the element of

Conta in order to easily replace defective boards and to easily upgrade the system to the administrator's liking.

Referring to claims 26 and 27, Conta discloses that if a new encapsulation/decapsulation chain should not be created, then avoid creating the particular chain on the interface (i.e. each end of a tunnel will consist of either a "transmit" interface, which will not create a decapsulation chain, or a "receive" interface, which would not create an encapsulation chain, or a bidirectional tunnel would include both types of interfaces) (¶ 81).

Claims 28-30 are rejected for similar reasons as stated above (i.e. a receive interface would not create encapsulation engines, and a transmit interface would not create a decapsulation engine) (Figures 3,4).

Referring to claim 34, Conta discloses the invention as described above. Conta does not specifically disclose that the numbers are set by user input, however user input is well known in the art (i.e. network administrators selecting which elements to execute which particular programs, etc.). By this rationale, "Official Notice" is taken that both the concepts and advantages of providing for user input is well known and expected in the art. It would have been obvious to one of ordinary skill in the art to modify Conta to have a user select which particular devices have which particular engines in order to tailor the network to the particular administrator's liking.

Claims 36-41, 45, 47-52, and 56 are rejected for similar reasons as stated above.

Claims 31-33, 35, 42-44, and 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conta-Singh as applied above in view of Tuniman et al. (USPN 6,507,874) (hereinafter Tuniman).

Referring to claims 31-33, Conta discloses the invention as described in claim 1.

Conta does not disclose that neither a decapsulation chain nor an encapsulation chain is created on the particular network element.

IN analogous art, Tuniman discloses another network interface device which discloses a plurality of network cards which perform specialized processing with respect to inputted data (Figure 7) and therefore do not create a particular encapulation/decapsulation chain on the particular element, rather this processing is done by specialized translators (e.g. abstract).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Tuniman with Conta in order to offload processing of various processes to specialized processors, thereby reducing overhead processing with respect to the network element.

Claims 35, 42-44, and 53-55 are rejected for similar reasons as stated above.

(10) Response to Argument

1) On page 9 of the appeal brief, appellant argues the Conta is devoid of a description of when these engines are created.

2) On page 9 of the appeal brief, appellant argues the Conta in view of Singh fail to disclose the determination steps related to the new decapsulation chain.

3) On page 11 of the appeal brief, appellant argues the Conta in view of Single fail to disclose the determination steps related to the new encapsulation chain.

4) On page 12 of the appeal brief, appellant the examiner's arguments lack requisite factual support and the examiner is erroneous.

5) On pages 13 and 14 of the appeal brief, appellant argues the dependent claims "for at least the same reasons discussed above as to claim 25."

The examiner respectfully submits:

Regarding argument 1) The examiner maintains the rejections because the Conta reference is not devoid of description in which these engines are created. First, Conta is a system that creates tunnels between edge devices for transport of packets either by way of packet transport over another type of packet or by virtual private networking (see para 4). Para 7 states "by definition, a tunnel exists between two nodes. One node is referred to as the entry node and the other is referred to as the exit node." As previously noted, the chains (engines) are required to

perform the steps of encapsulation/decapsulation by way of pre-pending headers and removing headers at the transmitting and receiving ends of the tunnels.

The examiner believes that the steps of creating an encapsulation chain and a decapsulation chain are inherently taught by the Conta reference because the reference teaches that these engines are required to process the transmitting (sending) and receiving (decapsulation) of packets across the tunnel. To support this statement in 103(a) rejection, the examiner points to Conta paragraph 81 where the interfaces are described. Para 51 details the steps taken by the encapsulation engine, while para 60-63 details the steps taken by the decapsulation engine. The mention and detailing of the steps taken by the encapsulation and decapsulation engines acknowledge their very existence and support that they must have been created. The examiner feels that the detailing of the engines themselves shown that they have been created, directly contradicting the claim that the reference is devoid of creation of the engines.

Regarding arguments 3) and 2) the examiner maintains the rejections. The engines which are argued above are created by virtue of their use and definition of a tunnel by entrance and exit (para 4, 7). The creation being based on at least one physical port of a particular card is taught by the second reference, Singh (this is not argued). The Conta reference is used to teach creation of the encapsulation chain is based on the determination that the element "is configured to send data packets of a type that would be produced by an encapsulation chain for the particular virtual interface and can send data packets toward a destination associated with the particular virtual interface" and the decapsulation chain created based on determining that the network element "is

configured to receive data packets of a type that would be processed by a decapsulation chain for the particular virtual interface."

The examiner again points to para 7, where "by definition" the tunnel is created between two nodes. Conta para 81 shows that tunnel interfaces are of two types (transmit and receiving). Both interfaces need to be created to enable and facilitate the transmission of the packet across the tunnel.

First, the determination to create the encapsulation chain (engine) is based on the network element being configured to send packets of a type for a particular interface and can sending towards a destination associated with the interface. The encapsulation engine is created at the transmit "end," of the tunnel by the determination that the networking element, needs to send the packet for a particular virtual interface. Conta para 4 shows transport one type of packets of a "type" are encapsulated and sent across the network of another type of packet. This applies the limitation of the transmitting a 'packet of a type.'

The particular virtual interface is the destination node or 'receiving' "end" that the packet is sent to. Para 18-19 show a packet arrives at a "label edge router" (LER) (transmit node), that encapsulates the packet for transmission across LSP to another LER for decapsulation. Para 33 further shows that interfaces are associated with specific attributes and streams are mapped to interfaces. The particular virtual interface is the end of the tunnel that is described by the identifier that is appended to the packet by the encapsulation engine (see para 55, 56 and 58). Thus the determination step is met by the identification of the packet and application of labels that a packet type needs to be send to an interface is met.

Similarly, the determining that a decapsulation engine is needed in order to 'receive data packets of a type that would be processed by a decapsulation chain for the particular virtual interface' is shown in Conta page 4, para 61-69. The decapsulation engine is required to receive and drop the pre-pended header that is added by the encapsulation engine. The creation of the decapsulation engine is necessitated by the determination that the decapsulation engine is required to perform the processing on the packet sent from the encapsulation engine.

On page 10, applicant argues the decapsulation engine is invoked to process a packet that is received from a tunnel. 'Invoke,' the act of invocation, can be likened to the step of creating which is a term from the claims, where the engine is invoked or created to handle the packet from tunnel.

Appellant argues that by the time the engine is invoked, the packet already would be received at a physical port of Conta and that Conta has no sensible reason or need to determine whether the element is configured to receive packets for the particular interface. The examiner maintains that the claims have no context of timing and that the engine is still required to process the packet or it may sit unprocessed at a port never getting to the particular interface. Focusing on Figure 3 for a moment shows, the particular virtual interface could be interpreted to be the output interfaces (right side) of Figure 3. If the decapsulation engine at tags 61, 63 is not 'created' or as appellant worded it, 'invoked' then the packet cannot be processed and forwarded to the output interfaces, tags 70, 72 (see para 62). The claims merely require the creation of the engines based on the need to send to a particular interface. Conta's sensible reason to determine whether the element is configured to receive packets for a particular interface is the basic need to implement the tunnels described in para 4 and 7.

The examiner argued these limitations together because the steps of creating both the transmitter and receiver are supported by the same rationales. An encapsulation chain (engine) requires a corresponding decapsulation chain (engine) in order to effect the tunneling as supported by the connection between both ends of para 7 and 81.

Regarding argument 4) The appellant proposes several hypothetical situations in which the steps of creating the encapsulation and decapsulation chains (engines) would be created without meeting the steps of determination.

The examiner maintains the rejection because the prior art reads on the limitations as claimed. First, regarding the argument of inherency, the examiner has provided support for the assessment of inherency (see above arguments 1-3). The examiner has correctly supported the connection of inherency by showing the environment in which the creation of the chains (engines) is necessary to implement the tunnel functions of Conta. Further Conta para 7 states, by definition the engine needs the transmitter and receiver, and para 81 teaches the same things. The body of Conta para 33, 55, 56, 58, and 60 show the functions of Conta that are performed to perform the described invention.

MPEP 2112 states:

> "The express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. "The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness." In re Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995) (affirmed a 35 U.S.C. 103 rejection based in part on inherent disclosure in one of the references). See also In re Grasselli, 713 F.2d 731, 739, 218 USPQ 769, 775 (Fed. Cir. 1983)."

The examiner maintains that basis/fact/ and technical reasoning required to reasonable support the determination of inherency is Conta reference showing the existing and use of the encapsulation and decapsulation engines to process packets for sending and receiving packets

altered to comply with the tunneling functions and features (see para 7, 81, and 33). The engines need to be created to be used. The step of determining is demonstrated in para 17 shows "tunneling is identifying and marking packets with labels and forwarding them to a router which then uses the labels to forward the packets through the network" show the step of identifying which is applied to packets to determine if they need the encapsulation/decapsulation engine to process the packets. Para 19, further illustrates the packets are identified, categorized, labeled according to mappings and tables (NHLFM, FTN, and TSIB [para 57]). The examiner maintains applicant has failed to show an unobvious difference by merely arguing hypothetical situations in which the step of determining may not be required. Appellant on the bottom of page 12, argues the engines of Conta may be created without determining whether a port is configured to receive certain types of data packets. This is not a possibility since Conta para 17-19 shows identifying types of data packets received and processing them according to the mappings and identifications. Some data is processed to be sent across the tunnel, while other data is normally forwarded to its next hop without being modified to be sent across a tunnel. Regarding the argument top of page 13, that these engines of Conta might be implemented in a monolithic package and installed without determination of whether any port is configured for certain data packets. This is also not possible, as Conta has shown identification of data packets for invocation of the engines is necessary for implementing the invention. One would only install transmitting and receiving interfaces or bidirectional interfaces on nodes once it was determined that those nodes are the "ends" of tunnels and would require such installation/creation/invocation to implement the invention.

Regarding argument 5) the examiner maintains that each dependent and similarly claim are rejected and maintained for the same reasons as argued above and that there are no new issues argued here.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Benjamin R Bruckart/
Primary Examiner, Art Unit 2446

/Jeffrey Pwu/
Supervisory Patent Examiner, Art Unit 2446

Conferees:

/Joseph E. Avellino/

Supervisory Patent Examiner, Art Unit 2458

/Jeffrey Pwu/

Supervisory Patent Examiner, Art Unit 2446